IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Gregory YELLAND, Stephen ROBINSON, Timothy FRIEDMAN and Christopher HUTCHISON
Application No.	:	10/541,896
Confirmation No.	:	6246
Filed	:	March 30, 2006
For	:	ASSESSMENT OF COGNITIVE IMPAIRMENT

Examiner	:	Brian Scott SZMAL
Art Unit	:	3736
Docket No.	:	671096.404USPC

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner:

I, Gregory Yelland, hereby declare as follows:

1. I am an inventor of the subject matter described in the above-identified patent application (hereinafter referred to as "subject application").

2. I received a Ph.D. in Psychology from Monash University in 1988; after which I conducted research at Monash University, culminating in my present tenured teaching and research position. I am currently Senior Lecturer and Leader of the Psycholinguistics and Cognition Research Group in the School of Psychology and Psychiatry, Faculty of Medicine, Nursing and Health Sciences at Monash University in Clayton, Victoria, Australia.

3. I have been involved in psychology research for over 24 years and I have authored or coauthored about 18 peer-reviewed, scientific publications. My research specialty is cognitive function, and particularly the development of methods to detect and monitor changes in cognitive performance across a variety of cognitive domains. A copy of my curriculum vitae is attached.

4. I have reviewed the subject application's Office Action dated June 2 , 2010 from the U.S. Patent and Trademark Office (PTO), as it relates to the rejection of claims 1-14, 16 and 18-25 under 35 U.S.C. § 103, for being allegedly obvious. In the Office Action, independent claims 1, 18, 20 and 22 and related dependent claims are asserted by the PTO to be obvious over the combination of Teicher et al. (U.S. 2004/0002636, "Teicher") and/or Polat et al. (U.S. Pat. 6,876,758, "Polat"), with Roenker (U.S. Pat. 5,801,810) and Jiang et al. (2001 *Vis. Res.* 41:3121, "Jiang").

5. Teicher and Polat are each asserted to teach a method that includes repeated steps of presenting a visual test stimulus to a user and measuring a response, but the methods of Teicher and Polat lack a step of masking the test stimulus by placing a mask over or in place of the stimulus. The PTO alleges that a skilled person would have modified Teicher or Polat based on the disclosures of Roenker and Jiang. It is concluded in the Office Action, in pertinent part, that Roenker teaches a mask placed over or in place of a visual stimulus where the mask has an image of wavy lines. The Office Action concedes that Roenker does not teach or suggest a mask in which the image has at least one filled circle. The PTO asserts, however, that a person having ordinary skill in the art would have found it obvious to modify the mask of Roenker by using instead a mask according to Jiang, which mask is alleged to comprise an image having at least one filled circle.

6. Based on studies that I have conducted of methods to assess the conduction of visual information to the brains of human laboratory subjects, I believe that unexpected advantages resulted from the use in such methods of a step of masking a visual test stimulus by placing a mask over or in place of the entire visual test stimulus wherein the mask comprises an image having at least one filled circle, as disclosed and claimed in the subject application. Because this effect of using a mask comprising an image having at least one filled circle could not have been predicted, I

believe the methods defined by the currently pending claims would not have been obvious to a person having ordinary skill in the art at the time the present patent application was filed.

7. When a human subject views a visual image such as a visual test stimulus, the eye receives visual information that is transmitted as a retinal image from retinal photoreceptors of the eye to the brain. The brain then interprets that retinal image as a picture. If a visual image is stared at for some time (*e.g.*, 20 seconds), the photoreceptors that were activated by the image will become temporarily fatigued compared to adjacent photoreceptors, and consequently a negative version of the original image will be conveyed to the brain for a short time afterwards. This is known as a 'retinal after-image'. The brain can use the visual information from the retinal after-image to interpret the negative image as a picture. In some instances, retinal after-images are strong enough to affect the perception of images that are viewed only for a very brief time (less than 250 milliseconds).

8. When visual information reaches the brain from the retina, it is briefly retained as a sensory memory (iconic memory) which persists for approximately 250 milliseconds or until it is replaced by subsequent visual information. These memories act like positive after-images, and this phenomenon can permit the subject to 'see' fleeting images even when they are presented too briefly to be attended to consciously. In order to measure the conduction of visual information to the brain, the occurrence of these positive after-images is desirably prevented, since they can produce spurious measurements. For example, an after-image may facilitate cognitive processing by an individual of a visual test stimulus beyond the duration of a pre-determined test stimulus exposure, artifactually influencing the individual's processing of the test stimulus in a manner that hampers the ability to assess cognitive impairment in the individual. To address this problem, it has been found that positive after-images can be effectively prevented by immediately following presentation to the viewer of a first visual image with presentation of a different, second image. This different, second image is known as a 'backward mask' and the procedure of presenting the mask is known as 'backward masking'.

9. The most common form of backward masking is Type A backward masking. (Sperling, G., 1960, *Psychological Monographs*, 74:11-AII; Dombrowe et al., 2009, *Jl. of Vision* 9(11):22, 1-11) It occurs when the original image is replaced by a masking stimulus that **spatially**

overlaps the location of the original target stimulus. The aim of this type of mask is to halt the further extraction of visual information from the stimulus by **preventing persistence of the image in iconic memory**, which is achieved by providing a replacement visual image that recruits many of the same retinal photoreceptors to represent a different image, and integrates with the features of the original image to create a different percept.

10. Type A backward masking is very effective at restricting the amount of visual information from the original image that is available to the perceptual process. The methods described in the current claims of the subject application use Type A backward masking.

11. The cited publication by Jiang et al. (2001 *Vis. Res.* 41:3121) has no relevance to Type A backward masking. Jiang et al. use a completely different procedure known as meta-contrast (Type B) masking. Meta-contrast (Type B) masking makes use of the brain's ability to deduce the shape of things by using cues such as lines or edges and, from such cues, inferring them to be solid. Meta-contrast occurs when the contours of the mask (actual or implied) surround but **do not overlap the target stimulus figure** or a specific element of the target stimulus. (Dombrowe et al., 2009, *Jl. of Vision* 9(11):22, 1-11; Averbach et al., 1961, *Bell System Technical Journal* 40:309-328) That is, in meta-contrast masking the mask consists of an unfilled figure that surrounds the target figure or element to be masked. In contradistinction to type A backward masking, meta-contrast masking is designed with the **specific purpose of allowing the image of the target stimulus to persist in iconic memory** and it does not subsequently recruit the photoreceptors to represent another image.

12. According to the method defined by the claims of the subject application, Type A backward masking is used when, after a pre-determined test stimulus exposure duration, the visual test stimulus is masked by placing a mask over or in place of the test stimulus. Type A backward masking (i) effectively restricts the amount of visual information from the original image that is available to the perceptual process, and (ii) prevents the formation of a retinal after-image of the test stimulus that might otherwise compromise cognitive test results by facilitating cognitive

processing. Meta-contrast (Type B) masking such as the masking described by Jiang et al. (2001) cannot produce these effects (i) and (ii).

13. Additional studies are here described showing unexpected advantages of using Type A backward masking with a mask that comprises an image having at least one filled circle in a method of assessing cognitive impairment. A variety of masks was examined (see Figure 1) in pilot studies, using human subjects who ranged in age from 20 to their mid-40s. The procedure was as described in the subject application. On each trial a focal point was presented on the screen for 500 milliseconds (ms) followed by one of two target stimuli. Target stimuli were randomly presented in the center of the computer screen at varying durations (*e.g.*, 11, 33, 55, 77, 99, 121, 143, 165 and 187 ms). The target presentation was immediately followed by one of the masks illustrated in Figure 1. There were six target presentations at each of the nine exposure durations. Targets and exposure durations were presented to each subject (user) in a different pseudorandom order. The target stimulus was a figure containing two vertical lines, one shorter than the other. The users were required to correctly identify the shorter of two lines by pressing the corresponding (left or right) button on a two-button response panel. Response times (RT in ms) and error rates (%) were recorded. The mean RT and % Errors were calculated for each exposure duration and then used to generate RT and Error rate curves. Each mask was examined separately, with the response curves providing a means of comparing the effectiveness of the masks.

14. The mask in panel A of Figure 1 was abandoned when it became clear that correct responses could be made on the basis of a motion after-effect, with the short line of the target appearing to grow when the U-shaped mask was presented.

15. The masks in Panel B of Figure 1 were also found to be inadequate. For the single black rectangle, the target appeared in the center of the mask as a white retinal after-image which enabled participants to respond correctly at even the shortest exposure duration. For the other two masks of Panel B there was insufficient spatial overlap to disrupt the target, such that the persistence of the target image in iconic memory resulted in the target stimulus remaining visible in the background of the mask.

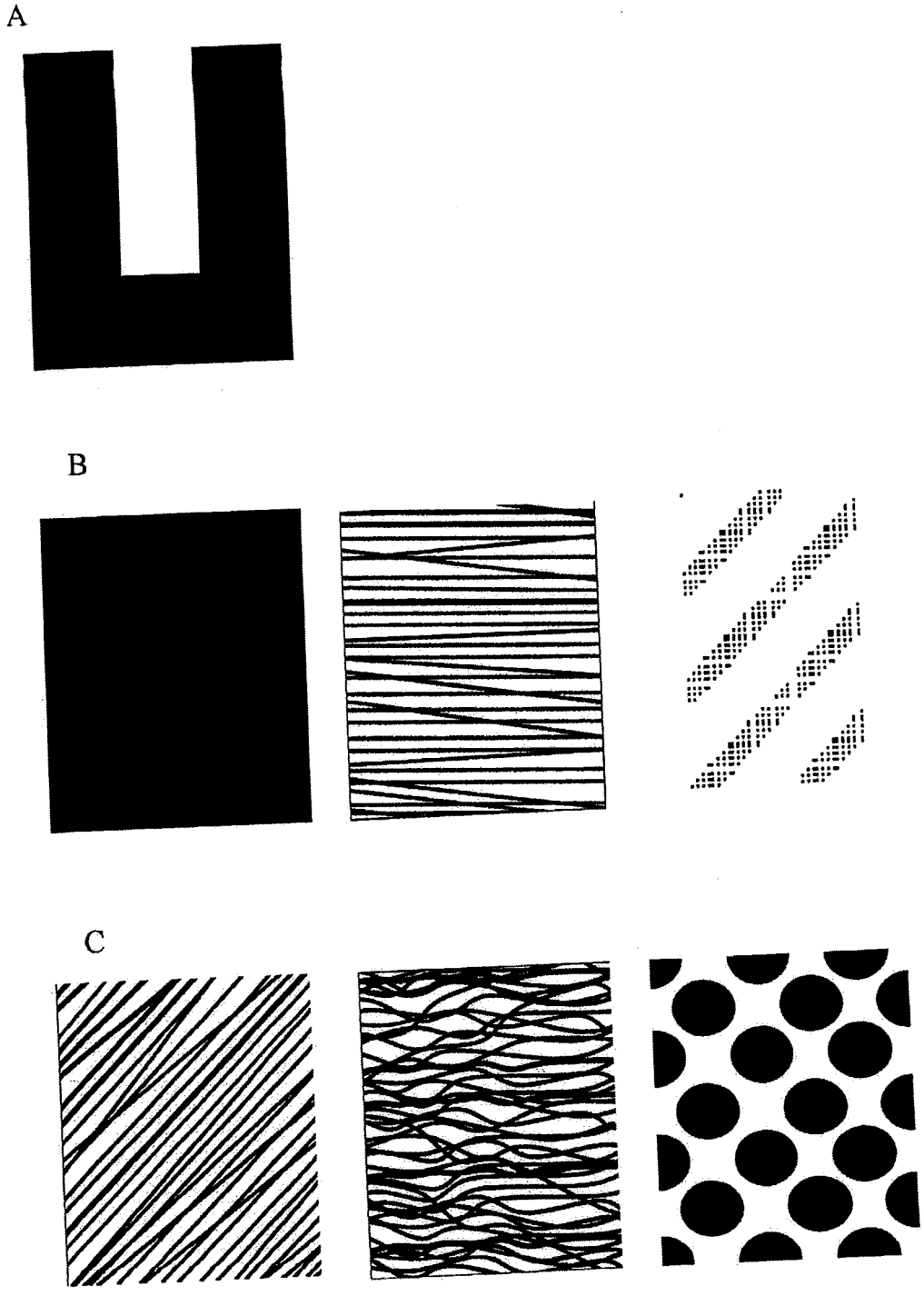

Figure 1. *Examples of some of the masks examined.*

16. Detailed pilot studies were only needed for the masks shown in Panel C. The comparative results for error rate and response time are shown in Figure 2.

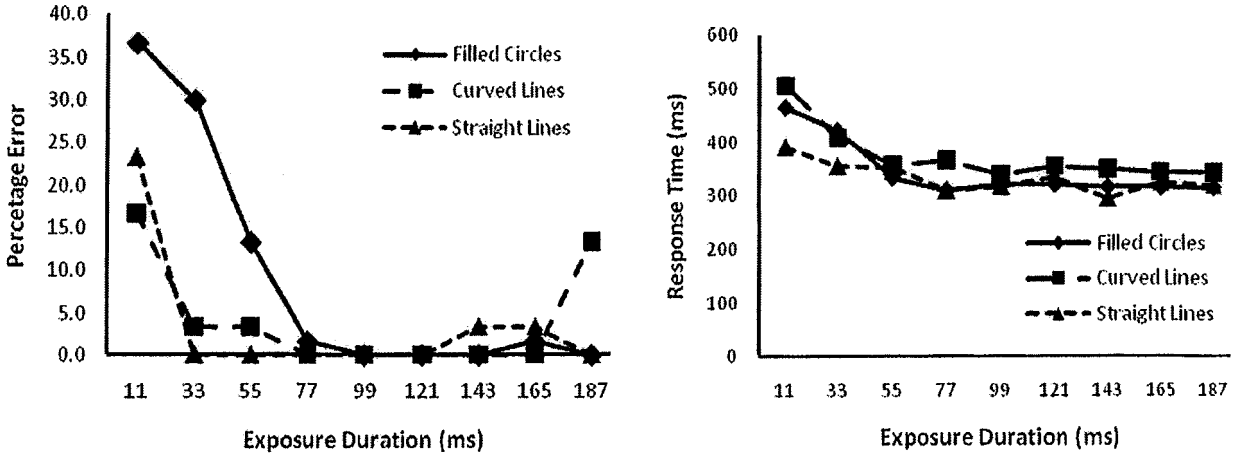

Figure 2. *Error rate and response time curves comparing the effectiveness of Type A backward masking as function of target exposure duration for masks comprised of angled straight lines, curved lines and filled circles.*

17. Error rate is the standard measure by which effectiveness of a backward mask is assessed. As shown in the left panel of Figure 2, participants made relatively few errors when the mask consisted of curved lines or straight lines. Thus, at the shortest exposure duration (11ms) about 20% of their responses were errors and by the next shortest exposure duration (33ms) their error rate had declined to practically zero. By contrast, when the mask consisted of filled circles, the error rates were much higher at short exposure durations and error rates did not decline to zero until an exposure duration of 77ms was used.

18. This difference is attributable to the fact that the masks consisting of curved or straight lines did not effectively remove the target image from iconic memory and/or block the formation of a retinal after-image, which enabled users to 'cheat' and see the target stimulus for longer than it appeared on the screen. However, the mask comprising an image of filled circles was very effective at preventing visual persistence and blocking the retinal after-image. This conclusion

was supported by the participants themselves, who reported being able to see an after-image when the mask consisted of lines, but not when it comprised an image of filled circles.

19. While there was little difference between the masks in terms of response times, performance (response time) with the filled circle mask most closely approximated the pattern found for error rates (Figure 2, right panel).

20. Recently, Dombrowe et al (2009, *Jl. of Vision* 9(11):22, 1-11) reported that spatial overlap and target-mask energy ratio were not sufficient on their own to account for the backward masking effect; they reported further that global features of the mask relative to the target were also important. Essentially, Dombrowe et al. teach that the larger the mask is relative to the target, and/or the more elements it has, the stronger the masking effect. The mask that is used according to the claims of the subject application, comprising an image having one or more filled circles, possesses exactly those features that Dombrowe and colleagues subsequently described to be optimally effective for backward masking.

21. Additionally, prior to the filing of the subject application, masks having images of lines were widely used for backward masking and were believed to be effective. It was therefore surprising that low error rates were observed following exposures of short duration when masks with straight or curved lines were used in the studies described above (Figure 2). It was also wholly unexpected that masks having a completely unrelated image type (filled circles) were remarkably effective at removing the visual test stimulus image from users' iconic memory, as described above.

22. Another surprising observation related to the use of masks having filled circles was that in the studies described herein, users reported that they were able to "see" the vertical lines of the stimulus in the masks containing the lines but could not do so with a mask containing filled circles, even though there were large white spaces between the circles, which spaces did not overlap areas in the visual field that the stimulus had previously occupied. User reports of a positive after-image in the white spaces and a negative after-image in the black circles were expected, based on the

results that were obtained for the other masks tested (see paragraph 15, *supra*), but neither one of these observations was reported for masks having filled circles.

23. I conclude that the backward mask comprising an image having filled circles according to the subject application is fundamentally different from a backward mask having an image of curved lines. The present mask with filled circles is more effective at blocking a retinal after-image of the visual stimulus and is much more effective at removing the stimulus image from iconic memory. These features give the mask having filled circles different psychophysical properties from those of a mask having curved lines.

24. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that the making of willfully false statements and the like is punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of any patent issuing from this patent application.

Dated this 2nd day of May 2011

Gregory Yelland, Ph.D.

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Curriculum Vitae

Dr Greg Yelland

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Personal Information:

Date of Birth: 5 April, 1959
Place of Birth: Melbourne, Victoria, Australian
Marital status: Married with two daughters

Academic Qualifications

Postgraduate:

Doctor of Philosophy (PhD), Monash University, 1988
Thesis Title: *"The influence of sentential context on word recognition performance in inexperienced and skilled readers."*

Undergraduate:

Bachelor of Science with Honours, Monash University, 1981
Double Major: Psychology & Physiology, Honours in Psychology (First Class)

Awards:

Australian Psychological Society Prize in Psychology:	1981
Commonwealth Postgraduate Research Award	1982 - 1985.
Inducted in to Hall of Science Excellence, RSC	2005
Faculty Achievement Award	2005

General career summary and track record relative to opportunity

I completed a BSc(Hons) and PhD at Monash University. I joined the Psycholinguistics and Cognition Laboratory in the Department of Psychology at Monash in 1987, becoming Team Leader of the laboratory in 1996, following stints as a visiting researcher at Haskins Laboratories (Yale University) and the City University of New Yorks. My early research dealt with children's reading and lexical processes where I developed for use with children the on-line (automated) research procedures used in adult psycholinguistic research. An important outcome of that research was the discovery that childhood experience with a second language is of benefit to children when they learn to read in their native language. A resulting paper (*Yelland, G.W., Pollard, J., and Mercuri, A.M. (1993). The mentalinguistic benefits of limited contact with a second language. Applied Psycholinguistics, 10 (4), 423-444*) became a standard reference source for the development of second language policy in Victorian Government Primary schools.

My research progress between 1991 and 1998 and between 2007 and 2008 was seriously impeded by the diagnosis of a cerebral tumour in 1991 and the consequent surgery, radiotherapy and complications with epilepsy, and further surgery in 2007 and 2008. Throughout these difficult periods I maintained an active laboratory through research supervision, and was invited to write a chapter on lexical access for *The Encyclopedia of language and linguistics*. I have given invited lectures on this research at numerous universities in Australia and the US and was invited to present workshops on memory impairment at *PsyEd* meetings in 2001, 2002 & 2003. I was a principal organiser for the Experimental Psychology Conference (Melbourne, 1983) and two Language and Speech conferences (Melbourne, 1993 and 1999). In 1999 I developed the *Multiple Session Masked Priming Task*, the first computer-based task able to reliably examine individual differences in lexical processes. This had an international impact on research practice and resulted in invitations to present a paper at the *1st International Symposium on Masked Priming* (Sydney, 2001) and to sit on the discussion panel for the Sydney Workshop on Words (December, 2003), a meeting of the top 30 researchers in lexical processing internationally.

I took the opportunity in 1999 to extend my psycholinguistic expertise into collaborations in the fields of mathematical processing, clinical neuropsychology, developmental disorders, sleep disturbance, and cognitive impairment. These collaborations have proven to very successful resulting in a number of publications, including one in Nature, and the development of the *Subtle Cognitive Impairment Test* (SCIT), for which I hold three patents. In 2009 A/Prof Stephen Robinson and Dr Glenda Bishop and I established the Blood Brain Interactions Group, formalising a 10 year collaboration between A/Prof Robinson and myself.

Appointments Held:

Current Appointment:

1996 - present	Senior Lecturer (Level C)	School of Psychology and Psychiatry, Monash University

Previous Appointments:

Sep 1989 – Dec1995	Lecturer (Level B)	Department of Psychology, Monash University
Oct 1988 – Aug 1989	Senior Tutor	Department of Psychology, Monash University
August 1985 – Sept 1988	Tutor	Department of Psychology, Monash University

Visiting Appointments:

April – June 2011	Visiting Scholar (OSP)	Gillin Sleep and Chronobiology Research Center, University of California, San Diego, La Jolle, California, USA
Jan – April 2011	Visiting Research Fellow (OSP)	Coeliac Clinic, Box Hill Hospital, Eastern Health
Oct - Dec, 1998	Visiting Research Fellow (OSP)	Graduate School of Linguistics, City University of New York, NY, USA.
July - Sept, 1998	Visiting Research Fellow (OSP)	School of Psychological Sciences, LaTrobe University, Melobourne, Australia
Oct, 1992 - Jan, 1993	Visiting Research Associate (OSP)□	Haskins Laboratories, New Haven Connecticut, USA
July - Sept, 1992	Visiting Research Associate (OSP)	Department of Psychology, Melbourne University, Melbourne, Australia

Teaching Experience

First year:

Statistical methods and Research design	1993 - 1996, 1999-2001
The historical foundations of psychology	1993 - 2001
Language acquisition	1986 - 1990
Developmental Psychology	1986, 1993 – 1994

Second Year

Cognitive Psychology	1989 - 1994, 1996-2002, 2004-2006, 2009-ongoing

Third year:

Psychology of Language	1990 - 1992, 1995-1997, 2000-ongoing
Brain structure and function (language)	2009 – ongoing
Imaging and brain disorders	2000 – ongoing
Issues in the psychology of reading	1993 - 1994
Cognitive Neuroscience	1995 - 1998
Philosophy of Psychology	1999 - 2000
Brain Development and Memory	2002 - 2007
Neuropsychology (Dyslexia)	2001 – 2010

Fourth Year (Honours):

Contemporary Issues in Psycholinguistics	1999 - 2010
Research Ethics	1995 - 2005
Essay and Thesis writing workshops	2001 - 2006

Course Coordination:

Honours	1996 - 1997, 2001-2006
Third Year	1999 - 2000
First year	1985 – 1995

Research Supervisions:

Ph.D:	9 completions and 4 current
D.Psych	2 completions and 1 current
M.Psych.(Forensic):	1 completion
Honours:	38 completions (22 x H1; 16 x H2A)
Postgraduate Diploma in Psychology	2 completion (1 x HD, 1 x D)

Research Experience

My research interests are focused on two domains of cognitive function. The first falls under the banner of the Psycholinguistics and Cognition research group and examines the nature of the mental processes that support our use of language, particularly written language. This has two streams of investigation: the development of language skills, in particular reading, and the disorders of language such as those associated with autism spectrum disorders, developmental dyslexia, and specific language impairment. The second falls under the banner of the Blood-Brain Interactions Group where the focus is on the use of the Subtle Cognitive Impairment Test (SCIT) and other neuropsychological tests to examine cognitive impairment in clinical and community populations including: community dwelling elderly, patients undergoing cardiac surgery, males with HIV-dementia, aging drivers, children with developmental disorders, the sleep deprived young and elderly adults, alcohol intoxicated young adults, patients with Coeliacs Disease.

Current Projects

Psycholinguistics and Cognition Research Group:

- Language processing deficits in Autism, Asperger's Disorder and Specific Language Impairment.
- The effects of sleep deprivation on automatic lexical processes

Blood-Brain Interaction Group (with Assoc Prof Stephen Robinson)

- Evaluation of the Subtle Cognitive Impairment Test (SCIT) - a computer-based test of cognitive
- Cognitive impairment following cardiac surgery
- Cognitive impairments in Parkinson's disease
- Improved cognitive function as a marker of intestinal health in Coeliacs and Crohn's Diseases
- Cognitive consequences of obstructive sleep apnea.

Research Grants:

A total of $370,000 in research grant funds have been received for these and other projects.

Research Collaborations:

Current:

- Prof. Peter Gibson & Dr Evan Newnham (Coeliac Clinic, Department of Gastroenterology, Box Hill Hospital) and Dr Sue Shepherd (ShepherdWorks & Eastern Clinical School, Monash Uni) Cognitive markers of intestinal inflammation in Coeliac Disease and Crohn's Disease.
- Dr Russell Conduit (School of Psychology and Psychiatry, Monash University) and Dr. Tony Sasse (Sleep Units at Victorian and Epworth Rehabilitation Centres): Cognitive consequences of obstructive sleep apnea.
- Assoc Prof Shantha Rajaratnam (School of Psychology and Psychiatry, Monash University): The effects of sleep deprivation on automatic lexical processes of the elderly.

- Prof. Julian Smith and Dr Aubrey Almeida (Department of Surgery, Monash Medical Centre & Epworth Hospital): Short- and long-term effects on cognitive function in patients undergoing cardiac surgery
- Prof. Bruce Tonge, Dr Kylie Gray and Dr Nicole Rinehart (Centre for Developmental Psychiatry & Psychology, MMC): Language deficits in autism spectrum disorders.
- Dr Dianne Sheppard and A/Prof Nellie Georgiou-Karistianis (School of Psychology and Psychiatry, Monash University): Use of the SCIT as a means for examining cognitive impairment in patients with Parkinson's disease.

Past:

- Assoc.Prof. Kim Marriot (School of Computer Science & Systems Engineering, Monash University): The processing of mathematical equations.
- Dr Sean Hearn and Dr Peter Read (Department of Anaesthesiology, Royal Victorian, Eye and Ear Hospital): The time course of cognitive recovery following general anaesthesia.
- Dr Jason Mattingly (Department of Psychology, Monash University): Developing a means by which to determine whether the colour and alphanumeric form binding in synaesthesia is automatic.

Patents:

Type of Patent	Patent Number	Country of Patent	Year	Name in which Registered	Title	Status	Funding Source
International	AU2004203679	Australia	2004	**Yelland,** Robinson, Friedman, Hutchinson	Detecting subtle cognitive impairment	Awarded	Monash University
International	ET4700416.3	European Union (EU) Falkland Islands (Malvinas)	2004	**Yelland,** Robinson, Friedman, Hutchinson	Detecting subtle cognitive impairment	Pending	Monash University
International	US10-541896	United States	2004	**Yelland,** Robinson, Friedman, Hutchinson	Detecting subtle cognitive impairment	Pending	Monash University

Publications

Book Chapters

Hong, E., Yelland, G. (1997). The generality of lexical neighbourhood effect, in Cognitive processing of Chinese and related Asian languages. The Chinese University Press, Hong Kong, pp. 187-203.

Yelland, G.W., (1994). The processes of lexical access. In: *The Encyclopaedia of language and linguistics.* London: Pergamon Press. (pp. 31-36).

Yelland, G. W., Day, R. H., and Johnston, M. B. (1996). No evidence for a difference in lateral masking in Specific Reading Disability. In U. Casteillo (ed.), *Performance for action*. Melbourne: Monash Distance Education Centre.

Journal Articles

Friedman, T., Yelland, G.W., and Robinson, S.R. (2011) Subtle cognitive impairment in elders with MMSE scores within the 'normal' range. *American Journal of Geriatric Psychiatry* (in press, accepted 1 March 2011)

Friedman, T., Robinson, S.R, and .Yelland, G.W. (2011) Impaired perceptual judgement at low blood alcohol concentrations. *Alcohol* (in Press, *accepted 13 October 2010,* published electronically 10 Dec 2010)

Speirs, S.J., Rinehart, R., Tonge, B., and Yelland, G.W. (2011) Lexical Processing in individuals with high functioning autism and Asperger's disorder. *Autism: International Journal of Research and Practice* (accepted 13 September, 2010)

Bruce, K., Smith, J.A., Yelland, G. and Robinson, S.R. (2008) The impact of cardiac surgery on cognition. *Stress and Health, 24*, 249-266.

Jansen, A., Marriott, K. and Yelland, G (2007). Processing algebraic notation: Direction matters. *European Journal of Cognitive Psychology, 19(2),* 286-320.

Swann, C., Yelland, G.W., Redman, J. and Rajaratnam, S. (2006) Chronic partial sleep loss increases the facilitatory role of a masked prime in a word recognition task. *Journal of Sleep Research, 15,* 23-29. (IF 2005: 3.329)

Jansen, A.R., Marriott, K. and Yelland, G.W. (2003). Comprehension of algebraic expressions by experienced users of mathematics. *Quarterly Journal of Experimental Psychology. Section A: Human Experimental Psychology*, *56A,* 3-30 (IF 2001: 1.2)

Mattingly, J.B., Rich, A.N., Yelland, G.W., and Bradshaw, J.L. (2001) Unconsciuos priming eliminates automatic binding of colour and alphanumeric form in synaesthesia. *Nature, 410*, 580-582.

Yelland, G.W., Pollard, J., and Mercuri, A.M. (1993). The metalinguistic benefits of limited contact with a second language. *Applied Psycholinguistics, 10 (4),* 423-444

Submitted manuscripts:

Bambrick, C.J., Yelland, G.W., Swann, C.J., Redman, J.R., and Shantha M. W. Rajaratnam, S.M.W. Differential effects of short-term sleep restriction on subjective sleepiness and neurobehavioural performance in young and older adults. Submitted to *Behavioral Sleep Medicine.*

Park, C.J., Gray, K.M., Taffe, J.R. and Yelland, G.W. Comparing the Language Skills of Preschoolers with Autism, Specific Language Impairment, Developmental Delay, and Typically Developing Children. Submitted to the *Journal of Autism and Developmental Disorders*

Published (refereed) Conference Papers

Byrne, C. J., and Yelland, G. W., (2005) *Multiple session masked priming: individual differences in orthographic neighbourhood effects*, Proceedings of the Twenty-Sixth Annual Conference of the Cognitive Science Society. Mahwah USA: Lawrence Erlbaum Associates Inc., pp. 174-179.

Jansen, A. R., Marriott, K., and Yelland, G. W. (2000). *Constituent Structure in Mathematical Expressions*. Proceedings of the Twenty-Second Annual Conference of the Cognitive Science Society (CogSci 2000), Univ. Pennsylvania USA, 13-15 August 2000, Lawrence Erlbaum Associates, Inc., Mahwah NJ USA, pp. 238-243.

Rich, A.N., Mattingly, J.B., Yelland, G.W. and Bradshaw, J.L. (2000). Conscious and non-conscious information processing in synaesthesia: a cognitive neuroscience perspective. In C. Davis, T. van Gelder, & R. Wales (Eds.). *Cognitice Science in Australia, 2000: Proceedings of the Fifth Biennial Conference of the Australian Cognitive Science Society*. Adelaide: Causal.

Jansen, A. R., Marriott, K., Yelland, G., (1999). *Perceiving structure in mathematical expressions*. Proceedings of the Twenty First Annual Conference of the Cognitive Society Society, Vancouver, Canada, 19-21 August 1999, Lawrence Erlbaum Associates, Mahwah New Jersey USA, pp. 229-233.

Published Abstracts

Bruce, K., Robinson, S., Yelland, G., Almeida, A., & Smith, J. (2007). Determining cognitive change after CABG and valve repair/replacement surgery. *Heart, Lung, and Circulation, 16(Suppl.)*, S32.

Friedman, T. W., Yelland, G. W., & Robinson, S. R., (2005). SCIT: A novel test that is sensitive to subtle deficits in cognitive performance in the elderly, *Australian Journal of Psychology, vol 57*, Australian Psychological Soc, Carlton Vic Australia, p. 10.

Hutchison, C. W., Yelland, G. W., Mijch, A., Wright, E., Gibble, T., & Robinson, S. R., 2005, A novel measure of cognitive function that is sensitive to CD4 T-cell count in HIV-1, *Australian Journal of Psychology, vol 57,* Australian Psychological Soc, Carlton Vic Australia, p. 11.

Byrne, C., Yelland, G.W., Johnston, M.B. & Pratt, C. (2000). Individual variation in the reliance on orthographic and phonological processes in the word recognition of

skilled adult readers. *Australian Journal of Psychology, 49* (Suppl.), 27th Australian Experimental Psychology Conference. Twin Waters, Queensland.

Johnston, M.B., Pratt, C., Yelland, G.W., Byrne, C., and McKague, M. (2000). Individual differences in masked orthographic and phonological priming of lexical decision in Grade 5 and 6 children. *Australian Journal of Psychology, 49* (Suppl.), 27th Australian Experimental Psychology Conference. Twin Waters, Queensland.

Rich, A.N., Mattingley, J.B., Yelland, G.W. and Bradshaw, J.L. (2000). Colour naming and word reading in colour-graphemic synaesthesia: interference and priming effects. *Australian Journal of Psychology, 49* (Suppl.), 27th Australian Experimental Psychology Conference. Twin Waters, Queensland.

Yelland, G.W. (1999) To go or not to go: A response alternative. *Australian Journal of Psychology, 48* (Suppl.), p.48. 26th Australian Experimental Psychology Conference. Sydney, New South Wales.

Yelland, G. W., Day, R. H., and Johnston, M. B. (1996). No evidence for lateral masking as a basis for specific reading disability. *Australian Journal of Psychology, 48* (Suppl.), p.51. 23rd Australian Experimental Psychology Conference. Perth, Western Australia.

Degoldi, B. R. and Yelland, G. W. (1996). Masked-priming using fragment primes: Prefixed, pseudo-prefixed and non-prefixed words. *Australian Journal of Psychology, 48* (Suppl.), p.38. 23rd Australian Experimental Psychology Conference

Yelland, G. W. (1995). Changes in lexical mechanisms as written vocabulary increases. *Australian Journal of Psychology, 47* (Suppl.), p.29. 22nd Australian Experimental Psychology Conference

Degoldi, B. R. and Yelland, G. W. (1995). Masked orthographic priming using prefixed, pseudo-prefixed, and non-prefixed words. *Australian Journal of Psychology, 47* (Suppl.), 7-8. 22nd Australian Experimental Psychology Conference

Invited addresses

The Subtle Cognitive Impairment Test (SCIT), presented to the Department of Gastroenterology, Easter Clinical School (Box Hill, April 2011).

Multiple Session Masked Priming Task, presented to the *1st International Symposium on Masked Priming* (Sydney, Dec 2001)

The development of lexical processing for written word recognition. Colloquium series presentation, Graduate School of Linguistics, City University of New York, Oct 1998

Are there phonological contributions to written word recognition? A developmental perspective. Colloquium presentation, Department of Psychology, Latrobe University, May 14, 1993.

Masked repetition priming. Seminar paper presented at Haskins Laboratories, New Haven, Connecticut, USA, December 17, 1992.

Bilingualism, metalinguistic awareness and the acquisition of reading skills. Presented to the Departments of Psychology and Linguistics, University of Connecticut, Storrs, Connecticut, USA, October 19, 1992.

The effects of exposure to a second language on metalinguistic awareness and early reading skill. Department of Psychology, University of Melbourne, July, 1992.

Bilingualism, metalinguistic awareness and literacy. Paper presented to the Prof. Richard Tucker workshop on "Language immersion programs in Australian Schools", Language and Society Centre, of the National Languages Institute of Australia, Monash University, November, 1990

Administration and Management

University

- Member the Monash University Human Research Ethics Committee, 2008-2010
- Member, Biomedical Library Committee, 2005-2007.
- Member of the IT Technical Working Party, 1992-2010
- Member of the Web Authors group, 2000 - 2006
- Member of the Advisory Committee for the Language and Society Centre of the National Languages and Literacy Institute of Australia, 1991 - 2000
- Project Officer, Language and Society Centre of the National Languages and Literacy Institute of Australia, Monash University, 1990-1993.
- Member (coopted) of the Board of the Centre for Cognitive Studies, Monash University, 1991 - 1992
- Member, Joint Orientation Committee, 1988-1989

Faculty

Faculty of Medicine, Nursing and Health Sciences

- Faculty OHS committee, 2011 – ongoing
- Faculty Board, 2007 - 2009
- Faculty Undergraduate Education Committee (Medicine), 2003
- Medicine E-learning committee, 2003-2004

Faculty of Science

- Faculty Board, 1998 – 2000, 2011 – ongoing
- Chair, Science Faculty Timetable committee 2001-2002
- Faculty IT committee, 1989 - 1999
- Committee on Graduate Matters, 1991-1996.
- Science Faculty representative on the Discipline Review Panel examining Teacher Education in Mathematics and Science, May 1989

Faculty of Arts

- Faculty Board, 1989 – 1997

SPPPM / Department of Psychology

- Chair, 4th year Course Management Committee, 2000 – 2007
- Board of Undergraduate Studies, 2000 – 2007
- Information Technology Advisory Committee, 2000 - 2001
- Chief Examiner, Psychology Honours, 1996, 1997 and 2000 - 2006
- Chair, Psychology Computer committee, 1989 - 1999

- Chief Examiner, Third year psychology, 1998 - 1999
- Chief Examiner, First year psychology 1988 – 1995
- Psychology Faculty Scholar Coordinator and student mentor; 1992 – 1999
- Computer Centre Liaison Officer, 1989 - 1998
- Member, Psychology Committee on Ethics in Animal Experimentation, 1989 - 1994

Community and Professional Service

Organisation of conferences and seminars.

- Co-convener of 13th Australian Language and Speech Conference, Monash University, November, 1999
- Co-convener of 7th Australian Language and Speech Conference, Monash University, November, 1989
- Treasurer, Organising Committee of the 13th Experimental Psychology Conference, Monash University, May, 1986.
- Co-convener, Staff Colloquium, Feb-June 1989 (jointly with Prof. T.J. Triggs).

Reviewing papers and grant applications

I have reviewed:

- papers for a variety of journals in psychology generally, psycholinguistics and neurolinguistics.
- research grant applications since 1995 for the ARC, NHMRC, and Monash University

Membership of societies

Member of the Australasian Experimental Psychology Society

Member of Neurosciences Victoria

Member of American Psychological Society

Member of Cognitive Science Association

Community service

- Presentations on cognitive decline and dementia and healthy brain elderly citizens' and PROBUS groups (2001 – 2010)
- Presented a papers on current issues in cognitive psychology to the Science Teachers Association of Victoria conference on VCE Psychology (1993 and 1994), and on the teaching of memory through disorders of memory to the PsyEd (VCE) Conference (2000 - 2002).
- Psychology course and careers information sessions at suburban Secondary Colleges.
- In-service training for primary school teachers on developments in reading acquisition research, and the assessment and treatment of children suffering from reading difficulties.